

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
6 May 2005 (06.05.2005)

PCT

(10) International Publication Number
WO 2005/040202 A3

(51) International Patent Classification⁷: **C07K 7/50**,
A61K 38/12, C07K 16/00, C07C 237/06

(21) International Application Number:
PCT/EP2004/011719

(22) International Filing Date: 18 October 2004 (18.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
03023395.1 16 October 2003 (16.10.2003) EP

(71) Applicant (for all designated States except US): **APLA-
GEN GMBH** [DE/DE]; Arnold-Sommerfeld-Ring 2,
52499 Baesweiler (DE).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **FRANK**,
Hans-Georg [DE/NL]; Josephina Straat 16, NL-6462
Kerkrade (NL). **HABERL**, Udo [DE/DE]; Adenauerring
30, 52499 Baesweiler (DE). **RYBKA**, Andreas [DE/DE];
Heidestr. 1a, 45701 Herten (DE). **BRACHT**, Franzpeter
[DE/DE]; Hans-Endt-Str. 117, 40593 Düsseldorf (DE).

(74) Agents: **MEYERS**, Hans-Wilhelm et al.; Postfach 10 22
41, 50462 Köln (DE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments

(88) Date of publication of the international search report:
23 June 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: STABILIZED ALPHA-HELICAL PEPTIDES

(57) Abstract: The present invention presents modules from which helical constraints can be built by very flexible strategies. The peptide bonds involved partially compensate the hydrophobic nature of the disulfide bonds, which are also included into the constraint strategy. Thus, the invention presents solutions, by means of which peptide bonds or closure of disulfide bridges can be used alternatively for closure of the constraint. This offers greater synthetic flexibility. Moreover, the peptide bonds are more hydrophilic than disulfide bridges alone and offer the advantage of better solubility of the product in an aqueous surrounding. It is possible to attach solvation tags like glycosyl moieties, polyethyleneglycol or other suitable extensions or appendices to the helical constraint structure. Usually, such a hydrophilic helical constraint structure replaces two hydrophobic amino acid side chains and thus improves pharmacologic properties of the molecule.



WO 2005/040202 A3